What is claimed is:

1. A static air mixing apparatus adapted for intermixing airstreams of different temperatures flowing through a common duct having walls defining a passageway, said apparatus comprising:

a plurality of vanes mounted transversely in the duct with respect to a direction of the airstreams flowing therethrough, said plurality of vanes diverging away from a center of said duct and terminating at their outer distal ends adjacent to said duct, at least one vane of said plurality of vanes having an inner section traversing a first distance from the center, and an outer section connected to said inner section along a leading radial edge of said vane, said outer section traversing a remaining distance toward said duct, said inner section curving rearwardly in a first direction away from said leading radial edge, and said outer section curving rearwardly in a second direction away from said leading radial edge.

2. An apparatus, as claimed in Claim 1, wherein:

said inner section of said at least one vane has an inclined edge defining a clip angle.

3. An apparatus, as claimed in Claim 1, wherein:

said outer section of said at least one vane has an inclined edge defining a clip angle.

4. An apparatus, as claimed in Claim 2, wherein:

said clip angle is disposed at an angle determined approximately by the following equation:

clip angle = 90-360/number of vanes.

5. An apparatus, as claimed in Claim 1, wherein:

said inner section curves rearwardly at an angle of about 65°.

6. An apparatus, as claimed in Claim 1, wherein:

said outer section curves rearwardly at an angle between about 65° to 90°.

7. An apparatus, as claimed in Claim 1, wherein:

an interface vortex is created at the junction between each said inner section and said outer section as the airstreams pass through said apparatus.

8. An apparatus, as claimed in Claim 1, wherein:

said inner section has a width, and said outer section has a width greater than said inner section.

9. An apparatus, as claimed in Claim 1, wherein:

a plurality of vortices are created as the airstreams pass through said apparatus, the vortices including an interface vortex circulating at the junction between each said inner section and said outer section, a clip angle vortex circulating at a distal end of an inclined edge of each said inner section, an outer vortex circulating near each said distal end of said vanes, and an inner vortex circulating adjacent the center of the duct.

10. A static air mixing apparatus adapted for intermixing airstreams of different temperatures flowing through a common duct having walls defining a passageway, said apparatus comprising:

a plurality of vanes mounted transversely in the duct with respect to a direction of the airstreams flowing therethrough, said plurality of vanes diverging away from a center of said duct and terminating at their outer distal ends adjacent said duct, at least one vane of said plurality of vanes including means for separating said vane into an inner section and an outer section, said inner section curving rearwardly in a first direction and said outer section curving rearwardly in a second direction.

11. An apparatus, as claimed in Claim 10 wherein:

said inner section of said at least one vane has an inclined edge defining a clip angle.

12. An apparatus, as claimed in Claim 10, wherein:

said inner section curves rearwardly at an angle of about 65°.

13. An apparatus, as claimed in Claim 10, wherein:

said outer section curves rearwardly at an angle between about 65° to 90°.

14. An apparatus, as claimed in Claim 10, wherein:

an interface vortex is created at the junction between each said inner section and said outer section as the airstreams pass through said apparatus.

15. An apparatus, as claimed in Claim 10, wherein:

a plurality of vortices are created as the airstreams pass through said apparatus, the vortices including an interface vortex circulating at a junction between each said inner section and said outer section, a clip angle vortex circulating at a distal end of an inclined edge of each said inner section, an outer vortex circulating near each said distal end of said vanes, and an inner vortex circulating adjacent the center of the duct.

16. An apparatus, as claimed in Claim 10, wherein:

said outer section of said at least one vane has an inclined edge defining a clip angle.

17. An apparatus, as claimed in Claim 10, wherein:

said outer section further includes an additional outer portion having a curvature that curves rearwardly in said first direction.

18. A method of mixing airstreams of different temperatures flowing through a common duct having walls defining a passageway, said method comprising the steps of:

positioning a plurality of vanes transversely in the duct with respect to a direction of the airstreams flowing therethrough, said plurality of vanes diverging away from a center of said duct and terminating at their outer distal ends adjacent said duct;

arranging at least one vane of said plurality of vanes to include an inner section curving rearwardly in a first direction, and an outer section connected to said inner section, said outer section curving rearwardly in a second direction, and said inner and outer sections having a common leading edge;

providing a flow of the airstreams through said plurality of vanes; and

creating an interface vortex circulating near a junction between the inner and outer sections, said interface vortex contributing to mixture of the airstreams.

19. A method, as claimed in Claim 18, further comprising the step of:

providing a plurality of the at least one vane, and creating a corresponding plurality of interface vortices.

20. A method, as claimed in Claim 18, further comprising the step of:

arranging said at least one vane to include an inclined edge, and creating a clip angle vortex circulating at a distal end of the inclined edge.

21. A method, as claimed in Claim 18, further comprising the step of:

providing a plurality of the at least one vane spaced from one another within the duct, and creating an outer vortex circulating near said distal ends of said vanes.

22. A method, as claimed in Claim 18, further comprising the step of:

providing a plurality of the at least one vane spaced from one another within the duct, and creating an inner vortex circulating adjacent the center of the duct.

23. A static air mixing apparatus adapted for intermixing airstreams of different temperatures flowing through a common duct having walls defining a passageway, said apparatus comprising:

a plurality of vanes mounted transversely in the duct with respect to a direction of the airstreams flowing therethrough, said plurality of vanes diverging away from a center of said duct, at least one vane of said plurality of vanes having an inner section, and an outer section connected to said inner section along a leading radial edge of said vane, said inner section curving rearwardly in a first direction away from said leading radial edge and said outer section curving rearwardly in a second direction away from said leading radial edge, said at least one vane being constructed from a single piece of material being cut along a transverse slot allowing said inner and outer sections to be bent in said first and second directions.

24. A static air mixing apparatus adapted for intermixing airstreams of different temperatures flowing through a common duct having walls defining a passageway, said apparatus comprising:

a plurality of vanes extending radially outward from a central hub, said vanes being mounted transversely in the duct with respect to a direction of the airstreams flowing therethrough, at least one vane of said plurality of vanes having an inner section curving rearwardly in a first direction, and an outer section connected to said inner section and said outer section curving rearwardly in a second direction away from said first direction, said inner section of said at least one vane including an inclined edge defining a clip angle.

25. A static air mixing apparatus adapted for intermixing airstreams of different temperatures flowing through a common duct having walls defining a passageway, said apparatus comprising:

a plurality of vanes mounted transversely in the duct with respect to a direction of the airstreams flowing therethrough, said plurality of vanes diverging away from a center of said duct, at least one vane of said plurality of vanes having a continuous leading radial edge, said at least one vane further having an inner section radially traversing a first distance, and an outer section connected to said inner section along the leading radial edge, said outer section radially traversing a second distance, said inner section curving rearwardly in a first direction away from said leading radial edge, and said outer section curving rearwardly in a second direction away from said leading radial edge.

26. A static air mixing apparatus adapted for intermixing airstreams of different temperatures flowing through a common duct having walls defining a passageway, said apparatus comprising:

a plurality of vanes mounted transversely in the duct with respect to a direction of the airstreams flowing therethrough, said plurality of vanes diverging away from a center of said duct, at least one vane of said plurality of vanes being constructed of a single piece of material having a continuous leading radial edge, an inner section curving rearwardly in a first direction away from said leading radial edge, and an outer section adjacent said inner section, said outer section curving rearwardly in a second direction away from said leading radial edge.

27. A method of mixing airstreams of different temperatures flowing through a common duct having walls defining a passageway, said method comprising the steps of:

positioning a plurality of vanes transversely in the duct with respect to a direction of airstreams flowing therethrough, said plurality of vanes diverging away from a center of said duct;

arranging at least one vane of said plurality of vanes to include an inner section curving rearwardly in a first direction, an outer section adjacent said inner section and curving rearwardly in a second direction, said at least one vane being constructed of a single piece of material;

providing a flow of the airstream through said plurality of vanes; and

creating an interface vortex circulating near a junction between the inner and outer sections, said interface vortex contributing to mixture of the airstreams.

28. A method, as claimed in Claim 27, further comprising the step of:

creating a central vortex circulating near the center of said duct, said center vortex contributing to a mixture of the airstreams.

29. A method, as claimed in Claim 27, further comprising the step of:

creating a clip angle vortex circulating near said inner section of said at least one vane, said clip angle vortex contributing to mixture of the airstreams.

30. . A method, as claimed in Claim 27, further comprising the step of:

creating an outer vortex circulating near said duct and adjacent said outer section of said at least one vane, said outer vortex contributing to mixture of the airstreams.

31. A method of mixing airstreams of different temperatures flowing through a common duct having walls defining a passageway, said method comprising the steps of:

positioning a plurality of vanes transversely in the duct with respect to a direction of airstreams flowing therethrough, said plurality of vanes diverging away from a center of said duct;

arranging at least one vane of said plurality of vanes to include an inner section curving rearwardly in a first direction, an outer section adjacent said inner section and curving rearwardly in a second direction, said inner section and said outer section sharing a common leading radial edge;

providing a flow of the airstream through said plurality of vanes; and

creating a plurality of vortices, said plurality of vortices including an interface vortex circulating near a junction between the inner and outer sections, and a clip angle vortex circulating near said inner section, said interface vortex and said clip angle vortex contributing to a mixture of airstreams.

32. A method, as claimed in Claim 31, wherein:

said plurality of vortices further includes a central vortex circulating near said center of said duct, and an outer vortex circulating adjacent said outer section and near said duct, said central vortex and said outer vortex further contributing to mixture of the airstreams.

33. A method, as claimed in Claim 31, wherein:

said interface vortex circulates in a clockwise direction, and said clip angle vortex circulates in a counterclockwise direction.

34. A method, as claimed in Claim 31, wherein:

said central vortex circulates in a counterclockwise direction, and said outer vortex circulates in a clockwise direction.

35. A static air mixing apparatus adapted for intermixing air streams of different temperatures flowing through a common duct having walls defining a passageway, said apparatus comprising:

a plate transversely mounted in the duct;

a plurality of vanes and flaps formed from said plate by cutting the plate to form the vanes and flaps, each of the vanes and flaps having a leading edge attached to said plate, and said vanes and flaps being bent in a downstream direction;

said vanes extending radially outward from a center of the duct, and each vane having an inclined edge defining a clip angle; and

said flaps being positioned radially outward from said vanes.

36. An apparatus, as claimed in Claim 35, wherein:

said plurality of vanes include at least four vanes, and said plurality of flaps include at least four flaps.

37. An apparatus, as claimed in Claim 35, wherein:

said flaps are rectangular shaped.

38. A method of mixing airstreams of different temperatures flowing through a common duct having walls defining a passageway, said method comprising the steps of:

positioning a plate transversely in the duct with respect to a direction of airstreams flowing therethrough;

cutting said plate to form a plurality of vanes which extend radially outward from a center of the plate;

further cutting the plate to form a plurality of flaps which surround said plurality of inner vanes, said flaps and said vanes being bent downstream a desired angle;

providing a flow of the airstream through said plurality of vanes and flaps; and

creating a plurality of vortices circulating downstream of said vanes and flaps, said vortices contributing to mixture of the airstreams.